

REMARKS

By this reply, claims 8-15 have been added, leaving claims 1, 3-5 and 8-15 pending in the application. No new matter has been added by the amendments. Reconsideration and allowance are respectfully requested in view of the following remarks.

Objections to the Specification

The Office Action objects to the specification for allegedly not providing proper antecedent basis for claimed subject matter. However, paragraph [0015] of the specification was amended in the Amendment After Final Rejection filed on April 21, 2005, to describe that "the dust discharge aperture 5 includes a wall flush with a wall of the cooling channel 4." Applicants respectfully submit that the amendment to the specification provided proper antecedent basis for the subject matter recited in claim 1. Accordingly, withdrawal of the objection is respectfully requested.

Rejection Under 35 U.S.C. § 112, First Paragraph

Claim 5 stands rejected under 35 U.S.C. § 112, first paragraph, for the reasons stated at pages 3-4 of the Office Action. The rejection is respectfully traversed.

The Office Action contends that claim 5 pertains to the embodiment of the component shown in Fig. 1, while the recitation in claim 1 that "the inspection aperture including a wall flush with a wall of the coolant passage" pertains to the embodiment shown in Fig. 2. The Office Action further contends that the

amendment to claim 1 presented in the April 21, 2005 Amendment introduced new matter. Applicants respectfully disagree.

The specification describes embodiments of components of a fluid flow machine that include an inspection aperture with a longitudinal axis essentially parallel or perpendicular to the axis of the fluid flow machine. Fig. 1 shows an exemplary embodiment of a component, wherein the inspection aperture longitudinal axis is perpendicular to the axis of the fluid flow machine, while Fig. 2 shows another exemplary embodiment of a component, wherein the inspection aperture longitudinal axis is parallel to the axis of the fluid flow machine. As such, Applicants submit that the subject matter recited in claim 5 is supported by the original application.

As acknowledged in the Office Action, an exemplary embodiment of the component recited in claim 1 is depicted in Fig. 2. However, claim 1 also encompasses other embodiments of the component that comprise the recited features including, *inter alia*, "an inspection aperture including a wall flush with a wall of the coolant passage." In other words, claim 1 encompasses a genus, and the embodiment of the component shown in Fig. 2 is a species of the genus.¹

However, the species or exemplary embodiment shown in Fig. 2 is not the only one encompassed by claim 1. Applicants submit that the subject matter recited in claim 5 is also within the genus recited in claim 1. Applicants submit that claim 5 covers various embodiments that comprise the recited features.

It is well established that the subject matter of a claim need not be described literally in order for the disclosure to satisfy the written description requirement. See M.P.E.P. § 2163.02, page 2100-178. Applicants submit that original disclosure

¹ See, for example, In re Rasmussen, 211 USPQ 323, 326-27 (CCPA 1981), in which the court held that the disclosure of a species adequately supported a claimed genus.

“conveys with reasonable clarity to those skilled in the art that, as of the filing date sought, applicant was in possession of the invention as now claimed [in claim 5].” Applicants submit that one having ordinary skill in the art would understand that the direction of the longitudinal axis of the inspection aperture (e.g., either perpendicular or parallel to the axis of the fluid flow machine) does not influence the feature of the “the inspection aperture including a wall flush with a wall of the coolant passage,” as recited in claim 1. Accordingly, because the subject matter recited in claim 5 is disclosed in the original disclosure, claim 5 does not contain new matter. See M.P.E.P. § 2163.02, page 2100-177.

Therefore, withdrawal of the rejection is respectfully requested.

Rejection Under 35 U.S.C. § 112, Second Paragraph

Claim 5 stands rejected under 35 U.S.C. § 112, second paragraph, for the reasons stated at page 4 of the Office Action. The rejection is respectfully traversed.

The Office Action asserts that claim 5 is indefinite because it pertains to the embodiment shown in Fig. 1, which is allegedly excluded by claim 1. Applicants submit that claim 5 complies with the requirements of 35 U.S.C. § 112, second paragraph. To the extent that the Office Action contends that the specification is inconsistent with subject matter that Applicants regard as their “invention,” such compliance is irrelevant to compliance with 35 U.S.C. § 112, second paragraph. See M.P.E.P. § 2172(II), page 2100-204.

Thus, Applicants submit that claim 5 is in compliance with the requirements of 35 U.S.C. § 112, second paragraph. Therefore, withdrawal of the rejection is respectfully requested.

Rejection Under 35 U.S.C. § 102

Claims 1, 3 and 4 stand rejected under 35 U.S.C. §102(b) over U.S. Patent No. 5,931,638 to Krause et al. ("Krause") for the reasons stated at page 5 of the Official Action. The rejection is respectfully traversed.

Claim 1 recites a component of a fluid flow machine, which comprises "a coolant passage comprising at least one curved flow section; and a second passage comprising an inspection aperture, the inspection aperture including a wall flush with a wall of the coolant passage, the inspection aperture being arranged and dimensioned to enable the introduction of a borescope through the inspection aperture and the second passage, and the second passage (i) branching off the coolant passage at the curved flow section and (ii) being arranged as a tangent to the curved flow section" (emphasis added). In the exemplary embodiment of the component shown in Fig. 2, channel 7 ("second passage") "branches off" the cooling channel 4 at the curved flow section. In other words, the channel 7 separates from the cooling channel 4 at the curved flow section. Accordingly, the cooling medium continues to flow in the cooling channel downstream of the curved flow section.

Applicants submit that Krause does not disclose each and every feature recited in claim 1. Referring to FIG. 2 of Krause, the turbine blade 10 includes adjacent coolant passage 68 divided by rib 62 and with respective passages 46a in flow communication with the tip passage 74. Coolant C_{MC} flows in the same direction (upwardly) along passages 46a and then out of the tip passage 74 via elbow 64. See column 5, lines 38-55, of Krause.

The Office Action states that Krause discloses "at least one curved flow section 68, 68," and a "second passage 74." The Office Action states that:

[t]he recitation in claim 1, lines 5-7 of the inspection aperture being arranged and dimensioned to enable introduction of a borescope through the inspection aperture and the second passage does not define over Krause, because these limitations are a function of the size of the borescope, and the size of the borescope would determine whether or not it would be introduced into the inspection aperture. A miniaturized borescope having a tiny diameter would be capable of being introduced into the inspection aperture.

Applicants respectfully disagree.

Applicants submit that although borescopes exist with different sizes, the size of a borescope cannot be arbitrarily small due to the necessary optical aperture and the space needed for the movement control of the borescope head. Commercially available borescopes have diameters ranging from 5 to 10 mm. Also-available mini borescopes (which are already miniaturized) have (minimum) diameters ranging from 1.5 mm to 6 mm. Therefore, one having ordinary skill in the art would understand that the features recited in claim 1 regarding the size of the inspection aperture clearly define a minimum diameter for the inspection aperture to be usable for this purpose.

Krause discloses no inspection means in the turbine blade 10. Nor does Krause suggest that the tip passage 74 can be used as an inspection aperture, much less that the tip passage 74 is arranged and dimensioned to enable the introduction of a borescope through the tip passage 74 and "second passage." To the extent that the Office Action contends that the features of the inspection aperture recited in claim 1 are "inherently" disclosed in Krause, Applicants submit that Krause does not support this contention.

As discussed at M.P.E.P. § 2112(IV), page 2100-54, “the fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic” (citation omitted). Rather, “the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art” (citation omitted). See M.P.E.P. § 2112(IV), page 2100-55. However, the Office Action provides no basis in fact and/or technical reasoning to support the contention that Krause’s tip passage 74 has any particular size, much less that it is necessarily “dimensioned to enable the introduction of a borescope through the inspection aperture and the second passage.” Accordingly, Krause does not support the alleged inherency.

Thus, claim 1 is not anticipated by Krause. Claims 3-5, which depend from claim 1, are also patentable over Krause for at least the same reasons as those for which claim 1 is patentable. Therefore, withdrawal of the rejection is respectfully requested.

New Claims

New independent claim 8 recites a component of a fluid flow machine, which comprises “a coolant passage comprising a curved flow section, a first section through which a cooling medium flows toward the curved flow section, and a second section adjacent the first section through which the cooling medium flows away from the curved flow section; and a second passage comprising an inspection aperture, the inspection aperture including a wall flush with a wall of the coolant passage, and the second passage (i) branching off the coolant passage at the curved flow section

and (ii) being arranged as a tangent to the curved flow section; wherein both of the first section of the coolant passage and the second passage are partially defined by a common surface" (emphasis added). Support for the subject matter recited in claim 8 is provided, for example, in FIG. 2, which shows the channel 4 having adjacent sections, where the left-most section is a "first section" and the adjacent section is the "second section." As shown, the first section of the coolant passage and the "second passage" 7 are both partially defined by a common surface. See also the attachment to the April 8, 2004 Amendment, which indicated the flow directions of the cooling medium through the "first section" and "second section" with respect to the "curved flow section."

Claim 9 recites that "the first section and the second section of the coolant passage are straight." Support for claim 9 is provided in FIG. 2, for example.

Support for claim 10 is provided in claim 1, for example.

Independent claim 11 recites a component of a fluid flow machine, which comprises "a coolant passage comprising at least one curved section, and a single first section in which a cooling medium flows from the coolant passage into a second passage; the second passage comprising an inspection aperture including a wall flush with a wall of the coolant passage, and the second passage (i) branching off the single section of the coolant passage at the curved flow section and (ii) being arranged as a tangent to the curved flow section" (emphasis added). Support for the subject matter recited in claim 11 is provided, for example, in FIG. 2, showing the channel 4 having adjacent sections, with the left-most section being "the single first section." See also paragraph [0015] of the specification. Applicants note that

Krause discloses two passages 46a of passages 68 along which the coolant CMC flows toward the tip passage 74.

Support for the subject matter cited in claim 14 is provided at paragraph [0015] of the specification, for example.

Claims 8-15 are also patentable.

Conclusion

For the foregoing reasons, allowance of the application is respectfully requested. If there are any questions concerning this response, to expedite prosecution, the Examiner is respectfully requested to contact the undersigned at the number given below.

Respectfully submitted,

BUCHANAN INGERSOLL PC

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